Remarks

Claim 1 has been amended to include the recitation of claim 9 as originally presented. Additional support for the above-requested amendments to claim 1 and support for the amendments to claim 60 is found at least in paragraph [0041]. Support for the amendments to claims 15, 55, and 65 is found at least in paragraph [0041]. Claim 18 has been amended to clarify the "fibers" recited in the claim. Support for the amendments to claims 23 and 68 is found at least in paragraphs [0052] - [0054]. Claim 51 has been amended to include the recitation of claims 52 and 56. Claims 9, 52, 56, and 61 have been canceled without prejudice. Claims 53 and 54 have been amended to change the dependencies of the claims. Claims 57 and 58 have been amended to recite "aqueous coating" for consistency with amended claim 51. Therefore, at least claims 15, 18, 53, 54, 57, and 58 were not amended for any reasons related to patentability.

Applicants understand that Applicants cannot, as a matter of right, amend any finally rejected claim, add new claims, or reinstate previously canceled claims after a final Office Action. However, according to MPEP §714.13, amendments that cancel claims, adopt Examiner suggestions, remove issues for appeal, or in some other way require only a cursory review by the Examiner may be considered. In this regard, Applicants submit that claims 1 and 51 have been amended to include claims that were both previously presented and for which a prior art search had already been conducted. The additional amendments to claim 1 identifies the reinforcing agent as a "fibrous" reinforcing agent. Because fibrous reinforcing agents were part of the Markush group identifying the types of reinforcing agents present in the secondary binder resin of claim 1, Applicants submit that a prior art search has already been conducted on "fibrous" reinforcing agents. Therefore, Applicants respectfully submit that only a cursory review of the cited references is necessary by the Examiner to determine the patentability of newly amended independent claims 1, 51, and 60. Accordingly, Applicants respectfully request that claims 1, 4 - 6, 8, 10 - 12, 15 - 24, 27 - 28, 51, 53 - 55, 57 - 58, 60, and 62 - 73 should be re-considered and passed to allowance.

No question of new matter arises and entry of the above-requested amendments is respectfully requested. Claims 1, 4 - 6, 8, 10 - 12, 15 - 24, 27 - 28, 51, 53 - 55, 57 - 58, 60, and 62 - 73 are before the Examiner for consideration.

Rejection under 35 U.S.C. §103(a)

Claims 1, 8 - 12, 15 - 21, 23 - 28, 51 - 58, and 60 - 73 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application No. 2005/0202742 to Smith, *et al.* ("Smith 2005") in view of U.S. Patent Application No. 2002/0151240 to Smith, *et al.* ("Smith 2002"). The Examiner asserts that Smith 2005 discloses a pre-coated mat formed of chopped nonwoven glass strands bound together with a resin binder. The pre-coated mat is used for preparing a gypsum board. It is asserted that the coating composition described in Smith 2005 includes a polymer latex adhesive (SBR), an inorganic adhesive binder, and mineral pigments. The Examiner asserts that the polymer latex is present in the coating composition in an amount from 1 - 17% by weight and that the filler is present in an amount from 75 - 99% by weight. With respect to the reinforcing agent, it is asserted that the use of mica is disclosed. The Examiner states that Smith 2005 discloses the invention except for teaching that the mat is mesh and that a coated secondary glass fabric is layered onto the mesh.

In this regard, the Examiner asserts that Smith 2002 discloses a composite facer that includes a glass scrim reinforcement that is bonded to a nonwoven mat with an acrylic adhesive. The nonwoven mat may contain polyester or polyolefin fibers. The Examiner notes that the acrylic adhesive of Smith 2002 has been equated to the coating on the veil of the present invention.

Initially, Applicants submit that claims 9, 25, 26, 52, 56, and 61 have been canceled without prejudice, thereby rendering the rejection of these claims moot.

In response to the remaining rejection, Applicants respectfully direct the Examiner's attention to independent claims 1 and 60 and submit that claims 1 and 60, as amended, define gypsum facing materials that are not taught or suggested by the combination of Smith 2005 and Smith 2002. In particular, the combination of Smith 2005 and Smith 2002 fails to teach or suggest a gypsum facing material that contains the combination of (1) a randomly oriented open mesh filament network substantially impregnated with a first binder resin and (2) an aqueous secondary binder resin applied to the open mesh filament network where the secondary binder resin has a viscosity sufficient to partially penetrate the open mesh filament network and where the secondary binder resin includes at least one filler in an amount not more than 65% by weight, at least one fibrous reinforcing agent, and a fairly low glass transition organic binder in an amount of at least 6% by weight (claim 1) or a gypsum facing

material that contains (1) a randomly oriented open mesh filament network impregnated with a first binder resin and (2) an aqueous secondary binder resin that has a viscosity sufficient to partially penetrate the open mesh filament network, where the secondary binder resin includes at least one filler in an amount not more than about 65% by weight and at least one reinforcing agent selected from acicular man made fibers and fibrous reinforcement agents (claim 60).

Smith 2005 discloses a pre-coated fiber mat for making a fiber mat-faced gypsum board. (*See, e.g.*, Abstract and paragraph [0001]). The coating on the fiber mat includes a mineral pigment or filler, an organic binder (preferably a hydrophobic UV-resistant polymer latex adhesive), and optionally, a second binder composed of an inorganic adhesive. (*See, e.g.*, paragraphs [0001], [0026], and [0042]). Of the two essential components, namely, the organic binder and the pigment or filler material, the organic binder forms at least 1 to about 17% by weight. (*See, e.g.*, paragraph [0042]). The organic adhesive binder includes materials such as styrene-butadiene-rubber (SBR). (*See, e.g.*, paragraph [0046]). The mineral pigment or filler forms the majority of the coating composition (*i.e.*, 75 - 99% by weight) and is provided in particulate form. (*See, e.g.*, paragraphs [0043] and [0045]). Examples of filler materials include calcium carbonate, clay, sand, mica, gypsum, and antimony oxide. (*See, e.g.*, paragraph [0044]). The optional inorganic adhesive binder is used in combination with the polymer adhesive latex binder in the coating composition. (*See, e.g.*, paragraph [0052]). Inorganic pigment or filler materials inherently containing some naturally occurring inorganic adhesive binders are preferred in making the coated mat. (*See, e.g.*, paragraph [0055]).

Applicants respectfully submit that there is no teaching within Smith 2005 of a secondary binder composition that includes both a filler and a fibrous reinforcing agent as claimed in claim 1 or a filler and acicular man made fibers and/or fibrous reinforcement agents as claimed in claim 60. In Smith 2005, the aqueous coating contains a combination of a mineral pigment or filler, an organic binder (*e.g.*, preferably a UV resistant polymer latex adhesive binder having a suitable level of hydrophobicity), and optionally, a second binder of an organic adhesive. (*See, e.g.*, paragraphs [0001], [0026] and [0042]). Examples of mineral pigments include calcium carbonate, clay, sand, mica, talc, gypsum, aluminum trihydrate, antimony oxide, or a combination of any two or more of these substances. (*See, e.g.*, paragraph [0044]). In addition, the mineral pigment of Smith 2005 is provided in a

particulate form. (*See, e.g.*, paragraph [0045]). Applicants respectfully submit that there is no teaching or suggestion within Smith 2005 of a secondary resin that contains both a filler and a fibrous reinforcing agent. Smith 2005 clearly teaches the inclusion of a particulate filler or pigment. In fact, Smith 2005 is silent as to any teaching or suggestion of a fibrous filler or pigment in the coating composition.

Further, Applicants respectfully submit that Smith 2005 does not teach or suggest the inclusion of acicular man made fibers as claimed in claim 60. At page 3, lines 4 - 6 of the final Office Action dated October 6, 2006, the Examiner asserts that the element of claim 60 that the reinforcing fibers may be acicular man made fibers has been met since Applicants have defined mica as a preferred reinforcing agent (*see, e.g.*, claim 15) and Smith 2005 discloses the use of mica. Applicants respectfully disagree. Mica is a naturally occurring silicate mineral with highly perfect cleavage. (*See*, Wikipedia®, the free encyclopedia at http://en.wikipedia.org/wiki/Mica (Attachment A)). Moreover, in Smith 2005, mica is defined as a particulate mineral pigment. (*See* paragraphs [0044] and [0045]). Therefore, the mica of Smith 2005 cannot be a man made acicular fiber as is claimed in claim 60.

In addition, Applicants submit that there is no teaching within Smith 2005 of a secondary binder composition that includes a filler in an amount of about 65% by weight or less as claimed in claims 1 and 60. Smith 2005 teaches that about 75 - 99 % of a filler is present in the coating composition. (*See, e.g.*, paragraph [0043]). In fact, Smith 2005 specifically teaches in paragraph [0043] that the filler is usually present in the coating composition in an amount greater than 75% by weight, namely, from about 83 - 95% by weight. Thus, it is submitted that Smith 2005 teaches away from the inventions recited in claims 1 and 60 in which the filler is present in the secondary binder resin in an amount not more than about 65% by weight.

In the final Office Action dated October 6, 2006 and in the Advisory Action dated February 1, 2007, the Examiner asserts that in it is well known to have 20 - 65% filler in a coating on a fibrous mat-faced board. In this regard, Applicants note that the Examiner is referring to paragraphs [0011] and [0012] of Smith 2005, which disclose U.S. Patent No. 5,397,631 in the Background of the Invention. If the Examiner believes that other prior art teaches the claimed feature of a filler in a secondary binder resin in an amount not more than about 65% by weight as recited in claims 1 and 60, it is respectfully submitted that the Examiner should cite the prior art in a rejection. Notwithstanding the above, it is respectfully

submitted that nowhere in paragraphs [0010] or [0011] is there any teaching or suggestion of a secondary binder resin that includes a filler, a fibrous and/or acicular man made reinforcing agent, and a fairly low glass transition organic binder. In the outstanding rejection, the aqueous coating of Smith 2005 does not teach or suggest a filler in an amount not more than about 65% by weight. As discussed above, Smith 2005 clearly teaches the inclusion of a mineral pigment or filler in an amount greater than 75% by weight, and preferably from 83 - 99% by weight, which teaches away from any amount lower then 75% by weight. (*See, e.g.*, paragraph [0043]).

With respect to Smith 2002, Smith 2002 discloses a composite facer material that includes a nonwoven mat layer bonded to a laid scrim reinforcement layer made of continuous glass fibers. (*See, e.g.*, paragraph [0015]). The layers are bonded together using an acrylic adhesive or polymer binder. (*See, e.g.*, paragraph [0015]). The composite facer should be constructed in a manner that allows an aqueous cementious slurry, such as gypsum or plasterboard, to flow through the composite facer material. (*See, e.g.*, paragraph [0016]). The nonwoven mat is preferably a carded polyester nonwoven mat, although other suitable materials such as glass, basalt, or olefins may be used. (*See, e.g.*, paragraph [0017]). The layers are bonded together using an acrylic adhesive or polymer binder. (*See, e.g.*, paragraph [0015]).

Applicants submit that Smith 2002 is completely silent as to any teaching of a binder resin or of a filler material in a binder resin. As such, it is respectfully submitted that the combination of Smith 2005 and 2002 does not teach or suggest Applicants' inventions as recited in amended claims 1 and 60. Further, because Smith 2002 fails to make up for the deficiencies of Smith 2005, such as, for example, teaching a secondary binder resin that includes a fibrous and/or acicular man made reinforcing agent and a filler in an amount not more than 65% by weight, Applicants submit that the combination of the Examiner's cited references would not result in the gypsum facer materials claimed in claims 1 and 60.

In addition, Applicants respectfully submit that there is no motivation for one of skill in the art to arrive at the inventions recited in claims 1 and 60 based on the teachings of Smith 2005 and/or Smith 2002. To establish a *prima facie* case of obviousness, there must be some motivation, either within the reference or in the knowledge of those of skill in the art, to modify the reference or combine the references' teachings, there must be a reasonable expectation of success, and the prior art references must meet all of the claim limitations.

(*See, e.g., Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 3, August 2005, §2142). Applicants submit that one of ordinary skill in the art simply would not be motivated to make a gypsum facing material that includes a secondary binder resin that has a viscosity sufficient to partially penetrate an open mesh filament network and which includes at least one filler in an amount not more than 65% by weight, at least one fibrous reinforcing agent, and a fairly low glass transition organic binder in an amount of at least 6% by weight (claim 1) or a gypsum facing material that contains an aqueous binder resin that has a viscosity sufficient to partially penetrate an open mesh filament network, where the aqueous binder includes at least one filler, at least one reinforcing agent (*i.e.*, acicular man made fibers and/or fibrous reinforcement agents), and at least one filler in an amount of not more than about 65% by weight (claim 60) because Smith 2005 and Smith 2002, as discussed above, do not teach or suggest the presence of a fibrous reinforcing agent or an acicular man made fibrous reinforcing agent in a coating composition. In addition, it is respectfully submitted that neither Smith 2005 nor Smith 2002 teach or suggest the presence of a filler in a secondary binder resin in an amount of about 65% by weight or less. Without some teaching or suggestion, there can be no motivation to combine the references, and there can be no *prima facie* case of obviousness.

With respect to the rejection of independent claim 51, Applicants respectfully direct the Examiner's attention to independent claim 51 and submit that claim 51, as amended, defines a gypsum facing material that is not taught or suggested by the combination of Smith 2005 and Smith 2002. In particular, it is submitted that the combination of Smith 2005 and Smith 2002 fails to teach or suggest a gypsum facing material that contains the combination of a randomly oriented open mesh filament network substantially impregnated with a first binder resin, high aspect ratio particles on the open mesh filament network, a second binder resin to hold the high aspect ratio particles onto the open mesh filament network, and an aqueous coating applied to the open mesh filament network, where the aqueous coating has a viscosity sufficient to prevent full penetration of the aqueous coating into the open mesh filament network, and where the aqueous coating includes at least one filler, at least one reinforcing agent selected from acicular man made fibers and fibrous reinforcement agents, and a fairly low glass transition organic binder.

It is respectfully submitted that neither Smith 2005 nor Smith 2002 teach or suggest high aspect ratio particles applied on an open mesh filament network or a binder resin for

holding the high aspect ratio particles onto the open mesh filament network. In addition, no where in Smith 2005 or in Smith 2002 is there any teaching or suggestion of a first binder resin that impregnates a randomly oriented open mesh filament network, a second binder to hold the high aspect ratio particles onto the open mesh filament network, and an aqueous coating (*i.e.*, third binder resin) that includes at least one filler, acicular man made fibers and/or fibrous reinforcement agents, and a fairly low glass transition organic binder. There is no teaching or suggestion within the four corners of Smith 2005 of three separate binders, or of a separate binder resin that is applied onto high aspect ratio particles to hold the particles onto an open mesh filament network. It is respectfully submitted that Smith 2002 is silent with respect to teaching a binder resin to specifically hold high aspect ratio particles onto an open mesh filament network as claimed in claim 51.

Additionally, as discussed above, Smith 2005 does not teach or suggest a secondary resin that contains both a filler and a fibrous reinforcing agent. Smith 2005 clearly teaches the inclusion of a particulate filler or pigment. (*See, e.g.*, paragraphs [0044] and [0045]). Further, Applicants respectfully submit that Smith 2005 does not teach or suggest the inclusion of acicular man made fibers as claimed in claim 51. As discussed previously with respect to the rejection of claim 60, there is no teaching or suggestion within the four corners of Smith 2005 of an acicular man made fibrous reinforcing agent. Although it is asserted by the Examiner that mica meets this claim element, it is respectfully submitted that mica is a naturally occurring material and is not an acicular man made fiber. (*See, e.g.*, Attachment A, Wikipedia®, the free encyclopedia at http://en.wikipedia.org/wiki/Mica). Moreover, in Smith 2005, mica is clearly defined as a particulate mineral pigment. (*See* paragraphs [0044] and [0045]). Therefore, Applicants respectfully submit that the mica of Smith 2005 is not a man made acicular fiber as is claimed in claim 51. In addition, it is respectfully submitted that the combination of Smith 2005 and Smith 2002 does not teach or suggest Applicants' invention as recited in amended claim 51. In addition, it is submitted that Smith 2002 fails to make up for the deficiencies of Smith 2005, such as, for example, the teaching of an additional binder resin to hold the high aspect ratio particles onto the open mesh filament network or the presence of a fibrous reinforcing agent or an acicular man made fibrous reinforcing agent in an aqueous secondary coating.

Additionally, Applicants respectfully submit that there is no motivation for one of skill in the art to arrive at the gypsum facing material recited in claim 51 based on the

teachings of Smith 2005 and Smith 2002. It is respectfully submitted that one of ordinary skill in the art would not be motivated to make a gypsum facing material that includes (1) an open mesh filament network impregnated with a first binder resin, (2) high aspect ratio particles applied to the open mesh filament network, (3) a second binder resin to hold high aspect ratio particles onto an open mesh filament network, and (4) an aqueous coating (*i.e.*, third binder resin) that includes at least one filler, at least one reinforcing agent that may be man made fibers or fibrous reinforcement agents, and a low glass transition organic binder. As discussed above, there is no teaching or suggestion of high aspect ratio particles applied onto the open mesh filament network, a binder resin to specifically hold high aspect ratio particles onto the open mesh filament network, or the presence of fibrous or acicular man made reinforcement fibers in the aqueous secondary coating. Without some teaching or suggestion, there can be no motivation to combine the references, and without motivation, there can be no *prima facie* case of obviousness. Accordingly, Applicants submit that independent claim 51, and all claims dependent therefrom, are non-obvious and patentable over Smith 2005 and Smith 2002.

Further, because Smith 2002 fails to make up for the deficiencies of Smith 2005, such as, for example, the teaching or suggestion of high aspect ratio particles applied onto the open mesh filament network, a third binder resin to hold high aspect ratio particles onto the open mesh filament network, or the presence of fibrous or acicular man made fibers in the aqueous secondary coating, Applicants submit that the combination of Smith 2005 and Smith 2002 would not result in the gypsum facer material claimed in claim 51.

In view of the above, Applicants respectfully submit that independent claims 1, 51, and 60 are non-obvious and patentable over the cited references. Because claims 8, 10 - 12, 15 - 21, 23 - 24, and 27 - 28 are either directly or indirectly dependent upon claim 1, claims 53 - 55, and 57 - 58 are either directly or indirectly dependent upon claim 51, and claims 62 - 73 are either directly or indirectly dependent upon claim 60, and, as discussed above, claims 1, 51, and 60 are not taught or suggested by Smith 2005 and Smith 2002, either alone or in combination, Applicants submit that claims 8, 10 - 12, 15 - 21, 23 - 24, 27 - 28, 53 - 55, 57 - 58, 60, and 62 - 73 are also not taught or suggested by the combination of Smith 2005 and Smith 2002. Applicants submit, therefore, that claims 1, 8, 10 - 12, 15 - 21, 23 - 28, 51, 53 - 55, 57 - 58, 60, and 62 - 73 are non-obvious and patentably distinguishable over Smith 2005 and Smith 2002 and respectfully request that this rejection be reconsidered and withdrawn.

Rejection under 35 U.S.C. §103(a)

Claims 4 - 6 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application No. 2005/0202742 to Smith, *et al.* ("Smith 2005") in view of U.S. Patent Application No. 2002/0151240 to Smith, *et al.* ("Smith 2002") as applied above to claim 1 and further in view of U.S. Patent No. 6,176,920 to Murphy, *et al.* ("Murphy") or U.S. Patent Application No. 2005/0009428 to Porter, *et al.* ("Porter"). The Examiner admits that both Smith 2005 and Smith 2002 fail to disclose a binder resin that further includes a thermosetting resin and a crosslinking agent. In this regard, the Examiner asserts that Murphy teaches a cementitious structural panel that includes a fiberglass mesh and a coating composition that includes crosslinking agents. In addition, the Examiner asserts that Porter teaches fabric reinforcement and cementitious boards faced with the same. It is further asserted that Porter teaches that the fabrics can be a non-woven mesh coated with binder compositions that include a thermoset resin. The Examiner concludes that it would have been obvious to one of ordinary skill in the art to have used Murphy's teaching of a crosslinking agent and Porter's teaching of a thermosetting resin in the gypsum facing panel of Smith 2005 and Smith 2002 to produce a gypsum board having increased weatherability and durability.

In response to this rejection, Applicants respectfully direct the Examiner's attention both to the amendments made to claim 1 and to the arguments presented above regarding amended claim 1 and submit that claim 1, as amended, defines a gypsum facing material that is not taught or suggested by Smith 2005 and Smith 2002, either alone or in combination. Because claims 4 - 6 directly depend from claim 1, which, as discussed above, is not taught or suggested by the combination of Smith 2005 and Smith 2002, Applicants submit that claims 4 - 6 are also not taught or suggested by Smith 2005 and Smith 2002. In addition, Applicants submit that the teachings of Murphy and Porter fail to make up for the deficiencies of Smith 2005 and Smith 2002, such as, for example, teaching a secondary binder resin that includes a fibrous reinforcing agent and at least one filler in an amount not more than 65% by weight. As a result, Applicants respectfully submit that claims 4 - 6 are non-obvious and patentable over the cited references and respectfully request that this rejection be reconsidered and withdrawn.

Rejection under 35 U.S.C. §103(a)

Claim 22 has been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application No. 2005/0202742 to Smith, *et al.* ("Smith 2005") in view of U.S. Patent Application No. 2002/0151240 to Smith, *et al.* ("Smith 2002"), as applied to claim 1 above, and further in view of U.S. Patent No. 4,394,414 to Brown *et al.* ("Brown"). The Examiner admits that Smith 2005 and Smith 2002 do not teach that the glass strands include a sizing composition. Brown is cited as disclosing an aqueous sizing composition for glass fibers. The Examiner asserts that the sized wet chopped glass fiber strands disclosed in Brown have good flowability and provide a mat with good flexibility and tensile strength. The Examiner concludes that it would have been obvious to one of ordinary skill in the art to have used Brown's sizing composition on the chopped glass strands of Smith 2005 and Smith 2002 to create a mat that has good flexibility and tensile strength.

In response to this rejection, Applicants respectfully direct the Examiner's attention both to the amendments made to claim 1 and to the arguments presented above regarding amended claim 1 and submit that claim 1, as amended, defines a gypsum facing material that is not taught or suggested by Smith 2005 and Smith 2002, either alone or in combination. Because claim 22 is directly dependent upon claim 1, which, as discussed above, is not taught or suggested by the combination of Smith 2005 and Smith 2002, Applicants submit that claim 22 is also not taught or suggested by Smith 2005 and Smith 2002. In addition, Applicants submit that the teachings of Brown fail to make up for the deficiencies of Smith 2005 and Smith 2002, namely, teaching a secondary binder resin that includes a fibrous reinforcing agent and at least one filler in an amount not more than 65% by weight. As a result, Applicants respectfully submit that claim 22 is non-obvious and patentable over the cited references and respectfully request that the Examiner reconsider and withdraw this rejection.

Conclusion

In light of the above, Applicants believe that this application is now in condition for allowance and, therefore, request favorable consideration.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

If necessary, the Commissioner is hereby authorized to charge payment or credit any overpayment to Deposit Account No. 50-0568 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17, particularly extension of time fees.

Respectfully submitted,

Date: 3-6-07

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